

America. From a careful study of the geological conformation of the north-west coast of Africa, of the Cape Verde, Canary, and Azore Archipelagos, he considers that a union of the two continents in remote epochs is scarcely conceivable. On the other hand, the former existence of a large island, comprising the Canaries, Azores, and Cape Verde group, may be regarded as not improbable. But whether this island was at any time itself connected with the African mainland is a question which cannot be decided without further investigation of the local conditions.

#### LOCAL SCIENCE SOCIETIES AND THE MINOR PREHISTORIC REMAINS OF BRITAIN<sup>1</sup>

IN the annual address which I had the pleasure of delivering to the Essex Field Club at the beginning of this year I ventured to put forward a suggestion which I will take the present opportunity of enlarging upon in the presence of this gathering of the representatives of so many of the local societies of this country.

Of the various branches of natural science cultivated by our respective societies perhaps no subject possesses so widespread an interest as the early history of man. It is only in recent times that materials have been gathered with anything like scientific method from the fragmentary records of the past. By the methods of modern research these materials have been coordinated into that imperfect sketch of the physical characters and mode of life of the early inhabitants of this and other countries which constitutes our present knowledge of prehistoric archaeology. But vast as have been the strides in this department of knowledge within the last quarter-century, it is certain that even now we are only on the threshold of a dim region into which advance is becoming more and more difficult with the increasing scantiness of the evidence the further we penetrate backwards into the history of our race. The labours of cave-hunters and searchers into our ancient river gravels—the excavators of our earthworks and tumuli have garnered a rich harvest of facts upon which is based the existing knowledge of ancient man. The old method of solving problems in prehistoric archaeology by attaching a tradition to any ancient monument of which the history was unknown has been weighed in the balance and found wanting. The erudite verbiage of the old-school antiquarian has been displaced by the shovel and pick of the modern investigator.

While the spirit of scientific inquiry is thus gradually enabling us to reconstruct some few chapters of the past history of man from such remains as have been preserved to us, the extreme importance of the relics themselves is as a natural consequence becoming more and more recognised. It must have been with the greatest satisfaction that anthropologists heard that the ancient monuments of this country, thanks to the foresight of Sir John Lubbock, were to receive Government protection. For years past the destruction of the most venerable relics has been going on, partly through local ignorance of their value, partly through wilfulness, and partly through the unavoidable clearance of ground for building and agricultural purposes. But although the larger and better-known remains are now secured from demolition, there are numerous smaller and less-known relics scattered over the country, which in the course of time are doomed to destruction by the advancing tide of civilisation. As may be seen on reference to good topographical works, the irreparable losses which anthropological science has already incurred in this way are enormous. The most deplorable feature in these cases of destruction is that they have occurred without adequate scientific supervision, and any evidence that might have been gathered by competent watchers has been for ever lost.

The systematic exploration of earthworks, barrows, tumuli, &c., by the method of excavation is necessarily expensive work, and it is to me a matter of some surprise that the munificent example set by men like General Pitt-Rivers and Canon Greenwell has not been more widely followed by those who, with the knowledge of this difficulty, have it within their means to promote this branch of research. As in the case of one of the societies which I have the honour of representing (the Essex Field

Club), which at the instigation of General Pitt-Rivers undertook the investigation of the ancient earthworks in Epping Forest, good work can sometimes be done by a local society by raising a fund for the purpose of exploring such remains in its own district, and this leads me to the immediate object of the present paper.

In attempting to draw up any suggestions for the guidance of local societies, the great difficulty appears to be the impossibility of finding any subjects for research of a sufficiently general scope to be open to all societies. The subjects already proposed by the committee appointed last year by the conference of delegates are, as you are aware: (1) underground waters, (2) erratic blocks, (3) underground temperature, (4) rainfall, (5) periodical natural phenomena, (6) injurious insects. To these I am now about to suggest the addition of another subject, viz. (7) prehistoric remains. Here, as it seems to me, there is a useful field for cooperation among the societies of all counties. Thanks to the increasing interest in scientific matters now making itself felt throughout the country, there is perhaps no corner of Britain which does not or could not be made to fall into the province of some local society or field club. In view of the imminent destruction of many of the minor remains on the one hand, and the scheduling of the larger remains for State protection on the other hand, I believe that occupation of the greatest scientific importance exists for all local societies.

The time has perhaps not yet arrived for laying down any rigid system for dealing with the proposed subject, and I therefore think it advisable at present to confine myself to a few general observations respecting the nature of the work which it is desirable that local societies should take in hand. It must be understood that these remarks are limited to prehistoric archaeology, as the remains belonging to the historical period are generally dealt with by archaeological societies, and do not come within the range of science subjects admitted by the British Association.

Assuming then that all societies have prehistoric remains of some kind within their districts, the first and most essential thing to be done is to draw up catalogues of these relics, giving their position, external form and structure, and bibliographical references. If the societies of each county would undertake this task, arranging matters so that no relic, however apparently insignificant, escaped their vigilance, we should thus in time come to possess a complete catalogue of all the ancient remains of Britain, and at the same time we should gradually get together a most valuable collection of literary references. The bibliography is essential, because so many of our ancient remains have from time to time been investigated and the results buried in some obscure archaeological paper, the disinterment of which is in itself a piece of antiquarian research. A catalogue such as the one now proposed would thus serve many useful purposes. We should have an index-guide indicating precisely where prehistoric remains exist at the present time, and further whether they had ever been systematically explored, and if so with what results. At the same time, attention would be directed to many relics which the local society and the Government inspector might deem worthy of being scheduled for State protection. By this means I am disposed to believe that the operation of the Ancient Monuments Bill would be considerably accelerated, and its effectiveness thereby increased.

It will be as yet premature to suggest any general form in which the proposed catalogue should be cast. Each society would no doubt at first work upon a plan of its own. But whatever form be adopted it is advisable that publicity should be given to the results in the Transactions or Proceedings of the respective societies, as the purely local interest in the work would be thus greatly enhanced, and the working up of the whole into one compendious catalogue might possibly be done later by a committee of the British Association composed partly of delegates from local corresponding societies, and partly of other eminent authorities in prehistoric archaeology whose assistance and advice it would be most desirable to secure.

If the scheme now broached should be deemed worthy of consideration by your respective societies, it would be essential, in order to carry out the work effectively, to appoint from your councils and members ancient monument committees, whose function it would be to draw up the proposed catalogue, visiting the remains to be entered in all cases where possible, and exhausting the topographical literature in order to avoid including any fictitious remains. Where no literary references are to be found, and in cases where doubtful structures exist, it would be

<sup>1</sup> A paper read at the Conference of Delegates from Local Societies and before the Anthropological Section of the British Association at Southampton, by Raphael Meldola, F.R.A.S., &c., Delegate of the Essex Field Club and the Braintree and Bocking Natural History Society. Communicated by the Author.

all the more advisable to enter these in the catalogue, with appropriate remarks, so that systematic explorations might be made when the opportunity presented itself for raising a fund for the purpose. Even when local histories or traditions are decided respecting the age of any earthwork or other ancient structure, but little credence can be attached to such traditions until actual investigations have been made. As far as my own experience goes, and from information derived from other sources, it would appear that local tradition is the bane of the scientific archæologist. There is, for instance, hardly any prehistoric monument in this country that has not been pronounced Roman by some antiquarian authority, an opinion which not only has often been proved by excavation to be erroneous, but which has also had the pernicious effect of checking further inquiry.

In recommending to your societies the actual investigation of the minor prehistoric remains of your districts as a task well worthy of the attention of any scientific body, it is perhaps not wholly necessary to urge that any excavations attempted should be carried out with the most scrupulous care, and the materials removed restored if possible on the completion of the work, so as to avoid any permanent disfigurement. The so-called "exploration" of many ancient structures whose venerable antiquity should have rendered them sacred has often been conducted in a manner which can only be called an act of desecration. How frequently do we read in local histories such statements as the following:—"On — Common there formerly stood a large mound of earth supposed to be a tumulus, which was opened by Mr. — in the year —, but nothing of any interest was found *except a few fragments of pottery and some decayed bones*!" Such passages as this, which is not a verbatim extract but simply an ideal specimen illustrating the kind of destruction that has been going on, lead to the supposition that the prevailing idea in opening a tumulus is the discovery of hidden treasure. Any other find is considered devoid of interest, and the scientific value of the structure is for ever lost by the scattering of its contents.

The ancient monuments committees of local societies, in addition to the preparation of catalogues and the conduction of explorations, would have another important function to fulfil: they might take upon themselves the duties of vigilance committees, keeping a watchful eye upon the ancient remains in their neighbourhood, and preventing as far as possible their destruction. In the case of minor remains which were not considered worth scheduling for State protection, opportunities would often occur for investigating without incurring the expense of systematic excavation. In the course of building or agricultural operations old ramparts are frequently cleared away in perfect ignorance of their value to the archæologist; or again, a new road has to be made, which in its course passes through the remains of some ancient earthwork now almost obliterated by the hand of time. In such cases the vigilance committee, having previously catalogued the remains threatened, would endeavour to come to some arrangement with the owner of the property, and obtain permission to appoint watchers for the purpose of recording the nature and position of any relics that might be found. The fact that local societies have not in past times been sufficiently alive to the important work which might thus have been done by taking advantage of any unavoidable demolition of prehistoric remains has led to the destruction of a vast amount of material which, under proper supervision, might have furnished facts of lasting importance to anthropological science. It remains with your respective societies to determine whether such ruthless waste of evidence is to be allowed in the future.

#### OBSERVATIONS ON HEREDITY IN CATS WITH AN ABNORMAL NUMBER OF TOES

DURING the last few years I have had occasional opportunities of studying heredity in various families of cats with an abnormal number of toes, and whose ancestors for some few generations at least, have possessed the same peculiarity. The observations have now been continued over a period long enough to render their publication a matter of interest. I first became acquainted with these cats in the winter of 1878, when staying near Haverfordwest. I made inquiries on seeing one of them for the first time, and ascertained that it had been obtained from Mr. Edward Vaughan, of Fern Hill, Haverfordwest, a relation of the friend with whom I was staying. Shortly afterwards I saw Mr. Vaughan, and had a long talk with him about

the peculiarity. At the time I took notes of his experience, and he has since kindly written to give further information. He first became acquainted with two generations of tortoiseshell cats with the normal number of toes (living respectively to the ages of eleven and twenty). Then in the third generation the extra toes appeared (this cat died aged nineteen, and was also a tortoiseshell). This cat or the mother was brought from Bristol to Haverfordwest. The peculiarity was inherited by "Punch"—a cat now living, and fifteen years old last May, also a tortoiseshell—making four generations. "Punch" has six toes on each fore foot, and six on each hind foot, but two of her kittens have had seven on hind and fore feet, and all varieties between the extreme and normal form have occurred commonly. It is a very curious and interesting fact that now in her old age all her kittens have the normal number of toes. Mr. Vaughan is of opinion that the peculiarity is also dying out among "Punch's" descendants, but this is by no means my experience with the branch of the family I have observed. He also gained the impression that the female kittens were more affected with the peculiarity than the males. Mr. Vaughan also made the interesting observation that the peculiarity reappeared in the kittens of a normal female cat (a daughter of "Punch's"), although in smaller proportions.

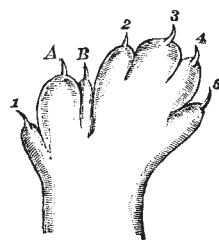


FIG. 1.—Right fore paw from above, with extra toes.

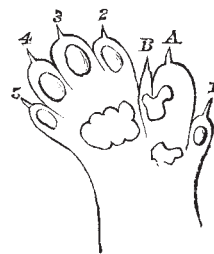


FIG. 2.—Right fore paw from below, with extra toes.

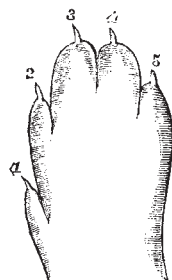


FIG. 3.—Right fore paw from above, normal.

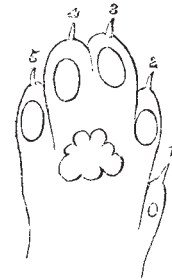


FIG. 4.—Right fore paw from below, normal.

In the spring of 1879 Mr. Vaughan very kindly sent a female tabby kitten to my home at Reading. This was a daughter of "Punch's," and it possessed six toes on each fore foot and six on each hind, thus rendering the feet very broad and giving them a most remarkable appearance. This cat, although rather wild, was very clever, being easily taught to "shake hands," and catching birds and even fish with surprising ease. When a little over a year old the first family (of four) was born, in the middle of June, 1880.

All the four kittens were tabbies, and I made the following notes of them:—(1) male: fore paws, five toes, but the insignificant innermost toe being absent, the foot appeared broad like the mother's; hind paws, five toes. (2) female: fore paws, five toes, same as (1); hind paws, six toes. (3) and (4) females: normal; five toes on fore paws, four on hind. No. (2) in this list was given to a friend, and will be again referred to. One normal female was also given away, but was soon lost without offspring; the other female was killed. There is nothing in the above list to support the view that the females are more affected than the males with the mother's peculiarity.

The next family of which I have notes was born May 13, 1881. The three kittens were tabbies as before:—(1) male: normal. (2) female: normal. (3) female: six toes on each fore and hind foot, as the mother. Here the only affected kitten is a female.